

TERMS OF REFERENCE

2025 CALL FOR EXPLORATORY RESEARCH PROJECTS UNDER THE UT AUSTIN PORTUGAL PROGRAM

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1. Introduction

The UT Austin Portugal Program is a partnership program in Science and Technology between the Portuguese Foundation for Science and Technology (FCT) and the University of Texas at Austin (UT Austin), supported by the Portuguese Ministry of Education, Science and Innovation in close collaboration with the Council of Rectors of the Portuguese Universities.

The Partnership was launched in 2007 and renewed three times, the last one in 2024, thereby opening a new funding cycle that goes from 2025 and 2030. Phase IV taps into key knowledge areas around which scientists and companies in Portugal engage with The University of Texas at Austin (UT Austin), to conduct research, educational and technology transfer activities able to strongly contribute to national and EU research and innovation agendas and leverage synergies between different funding sources.

The current document must be consulted in tandem with the Announcement for the 2025 Call for Exploratory Research Projects under the UT Austin Portugal Program, providing additional and complementary guidance for transatlantic consortia intending to participate.

2. Objectives

The UT Austin Portugal Program is now inviting its community to submit proposals for Exploratory Research Projects (ERPs). The Program seeks collaborative research work bringing together the University of Texas at Austin (UT Austin) and Portuguese research institutions, alongside industry partners or other collaborative institutions, to stimulate high-impact research activities contributing to giving Portugal prominence in the international landscape with regard to Advanced Computing, Clean Energy, Nanotechnologies and Space-Earth Technologies.

Despite being small-scale projects, ERPs must be underpinned by high-risk/high-reward work plans, show promise and a strategy for potential future expansion of project goals and lead to joint scientific outcomes, e.g. publications in peer-reviewed journals.

This call encourages the submission of project proposals by Principal Investigators in Portugal, provided that such proposals are in collaboration with Principal Investigators of UT Austin.

3. Research Areas and Key Topics under this Call

In Phase IV, the Program concentrates efforts in four flagship research areas. Three of these areas – Nanotechnology, Advanced Computing, and Space & Earth Technologies – continue from Phase III with a reviewed scope, while a new area of focus, Clean Energy, is introduced as a result of more than two years of deliberate discussions with scientific project leaders, the business and research community in Portugal and at UT Austin, at the Program’s Governing Board and External Review Committee. The flagship areas are in the intersection of Portugal and UT Austin’s unique capabilities.

This Call targets the Program’s four flagship research areas under Phase IV, identifying for each a set of key topics of strategic relevance to Portugal and its international positioning:

- **Advanced Computing: Scaling energy-efficient computing tools, such as greener and more sustainable AI solutions, with a focus on efficiency and applying translational AI across different domains.**

Advanced Computing has been instrumental in placing Portugal at the forefront of the European HPC landscape. Through its collaboration with UT Austin’s Texas Advanced Computing Center (TACC), Portugal has become a leader in high-performance computing. Advanced Computing will continue to focus on topics such as AI, machine learning, and quantum computing, leveraging Portugal’s digital infrastructure and research expertise. The rapid growth of artificial intelligence has led to an unprecedented need for computing power. Sustainable Advanced Computing, focused on promoting efficient large-scale computing for artificial intelligence and scientific discovery, emerges as a natural, overarching challenge.

The following topics are identified as preferred options that proposals may consider:

- Low-precision hardware built for AI for scientific computing problems
 - Greener, more efficient, and sustainable AI tools
 - Translational AI research
 - Future computing paradigms
- **Clean Energy: Achieving climate neutrality, with priority on climate-neutral cities, greening industries, and developing future energy systems.**

This area focuses on leveraging the complementary expertise between Portugal and UT Austin in sustainable energy systems, hydrogen production, and renewable energy integration. It mobilises complementary scientific competencies in Portugal and at UT Austin in areas such as sustainable energy systems, energy market modelling and simulation, advanced simulation of cyber-physical systems, and reliability analysis of energy systems.

The following topics are identified as preferred options that proposals may consider:

- Climate-neutral cities
 - Greening industry
 - Future energy networks & systems
- **Nanotechnologies: Advancing critical materials, particularly in battery technology, semiconductors, and green hydrogen production.**

Nanotechnology is a long-standing area of the Program and was first introduced in 2013. It became a cornerstone of the partnership, leading in applications, research projects, and exchanges, with applications spanning health to energy sectors. Within nanomaterials, there are significant opportunities for rapid discovery and rational design of new materials, particularly in battery technology, semiconductors, green hydrogen and smart textiles.

The following topics are identified as preferred options that proposals may consider:

- Advanced batteries
 - Green hydrogen-based economy
 - Advanced environmental technologies
 - Semiconductor packaging
 - Smart textiles
- **Space-Earth Technologies: Exploiting Space technology and data for Earth applications**

Space-Earth technology became a core area in the third phase of the Program. In this new phase, it will continue involving collaboration between Portuguese and UT Austin researchers to improve our understanding of Earth systems, natural disasters and climate change through satellite and space-based observation technologies. The Program envisions future partnerships between Space-Earth technologies and other scientific fields, such as advanced computing and nanotechnologies.

The following topics are identified as preferred options that proposals may consider:

- Terrestrial applications enabled by Space.
- Technology for sensing and related enabling solutions in Space.
- Technology for enabling activities and engineering operations in Space.

Proposals wrongly assigned by their proponents to a scientific area may end up being assessed by evaluators whose expertise does not relate to the topics addressed by such proposals.

4. Further Award Information

4.1. [Regulations and guidelines applicable to Research Teams in Portugal](#)

Rules and guidelines governing access to funding by research applicants in Portugal can be consulted in the following official documentation:

- Call Opening Announcement;
- Application Guide;
- Guide for Peer Reviewers;
- CIÊNCIAVITAE Guide.
- The Ethics Self-Assessment Guide;

4.2. Award for Research Teams at UT Austin: Eligible and non-eligible expenses

The present call, opened by FCT, governs the funding to be granted to research teams in Portugal. These rules are laid out in No. 4 of the Call Announcement.

The Program's budget at UT Austin will fund UT Austin research teams independently. The UT Austin Portugal Program's budget at UT Austin will fund its teams with between \$100,000 (one hundred thousand US dollars) per project to make it possible for PIs to hire full-time PhD students who may spend some time in Portugal as exchange students during the projects.

Eligible expenses at UT Austin are directly related to research activities: e.g. materials, lab time, equipment usage, graduate student tuition/stipends, and travel. Faculty salary and equipment are non-eligible.

5. Application Review: Criteria Description

In accordance with No. 7 of the Call Announcement, an international panel of independent reviewers, affiliated with foreign institutions, will carry out the evaluation. The evaluation will follow the Regulations Governing Access to Funding for Scientific Research and Technological Development Projects and the Guide for Peer Reviewers:

The selection and ranking of projects are based on a Project Merit Indicator (MP) using the following criteria:

A. Scientific merit and novelty of the project from an international standpoint and alignment with the objectives of the UT Austin Portugal Program and the challenges of the scientific area where it falls under

This criterion aims to assess the following:

- Relevance and originality of the project proposed (based on the state-of-the-art in a determined scientific area and previous work done by the proposing team);
- Thematic alignment of the proposal with the Exploratory Research Projects topics as outlined in the Project Areas' section described above and adherence to relevant Portuguese research and innovation agendas.
- Adequacy of the methodology adopted for carrying out the project;
- Expected results and their contribution to scientific and technological knowledge;
- Expected joint publications; venues and submission dates;
- Contribution towards promoting and disseminating science and technology;
- Production of knowledge deemed beneficial to society or a business sector.

B. Scientific merit of the PI and the research team

The present criterion is intended to evaluate the following:

- Career profile of the PI and the rest of the team;
- Teams' relevant scientific publications;
- Abilities and skills to adequately execute the proposed project (team configuration, PI's qualifications);

- Ability to involve young researchers in training;
- Level of commitment of any companies participating in the project (if applicable).

C. Feasibility of the work program (including its planning) and the expected indicators, as well as the budget adequacy.

- Organization of the project in terms of the proposed objectives and resources (duration, equipment, size of the team, institutional and management resources);
- Institutional resources of the proposing and participating entities (technical-scientific, organizational and managerial resources and, when appropriate, co-funding capacity on the part of potentially involved companies).
- Valuation of the potential of the predicted indicators (e.g., publications, communications, reports, seminars and conferences organization, patents, etc.);
- The adequacy and consistency of the estimated costs (Lump Sum) to accomplish the objectives.

D. Potential social and economic impact of the research work and contribution towards relevant Portuguese research and innovation agendas.

- Potential to leverage R&D results further and beyond the ERP project's scope (also including through engagement with prospective exploitation partners, other stakeholders, users and/or society; fundraising), leading to technologies with a relevant social and economic impact.
- Potential to leverage synergies with flagship projects and initiatives at both the national and EU levels, thereby contributing to the scaling up of relevant results and the efficient use of funding

The formula for calculating the Project Merit, along with additional considerations regarding the scoring and ranking of applications, is outlined in Section 7 of the Call Announcement.

6. Project Monitoring and Reporting

Projects selected under this Call will be subject to monitoring and reporting procedures. PIs will be requested to report to the FCT the progress made and overall achievements